

CLAIMS

1. A software execution control system which updates first software installed in a user computer to second software, comprising:

    a distribution part which distributes said second software that is encoded and an execution control program for controlling the execution of said second software to said user computer via a communications network; and

    a verification part which performs user verification by a request from said execution control program installed in said user computer, and which transmits specified information that is required in order to decode and start said second software to said execution control program via said communications network in cases where it is confirmed that the user is a valid user;

    wherein said second software is constructed so that this software can be started only by the starting information that is transferred from said execution control program; and

    said execution control program is constructed so as to:

        (1) decode said encoded second software on the basis of said specified information received from said verification part, and substitute this second software for said first software;

(2) start said second software by creating starting information on the basis of said specified information; and

(3) disable said second software when the execution of said second software is completed.

2. The software execution control system according to claim 1, wherein said execution control program is constructed so that this program can handle a plurality of different types of second software, and said specified information that is transmitted to said execution control program by said verification part includes storage destination address information and a starting argument for the second software to be started, and decoding key information for decoding the second software.

3. The software execution control system according to claim 1, wherein said execution control program transmits verification information including machine information that is specific to said user computer and encrypting key information to said verification part, said verification part performs user verification on the basis of at least said machine information, said verification part encrypts said specified information by means of said encrypting key information and transmits this information to said execution control program via said communications network in cases where it is confirmed that said user is a valid user, and a plurality of sets of

said machine information can be registered in said verification part.

4. The software execution control system according to claim 1, wherein in cases where it is confirmed that said user is a valid user, said verification part transmits list data of second software that can be started by this user, and transmits said specified information relating to second software selected from said list data to said execution control program via said communications network.

5. The software execution control system according to claim 1, wherein said execution control program is a program that realizes, in said user computer, a function that acquires machine information specific to said user computer, a function that creates encrypting key information, a function that requests user verification from said verification part, and transmits at least said machine information and said encrypting key information to said verification part, a function which allows the user to select one type of second software from the list data of second software that can be started which is received from said verification part, and which notifies said verification part of the selected second software, a function which receives specified information that is formed by encrypting the storage destination address information, starting argument and decoding key information of said selected second software in said user computer by means

of at least said encrypting key information, a function which decrypts said encrypted specified information by means of at least said encrypting key information, a function which decodes the second software inside said user computer by means of said decrypted decoding key information, a function which creates said starting information on the basis of said decrypted starting argument and said storage destination address information, a function which starts said decoded second software by means of said created starting information, and a function which monitors the conditions of execution of said started second software, and which disables said second software when the execution of this second software is completed.

6. The software execution control system according to claim 1, wherein said second software includes a program and an accompanying data group, and said program or said accompanying data group, or both, are updated.

7. The software execution control system according to claim 1, wherein said first software installed in said user computer can be executed without undergoing verification by means of said verification part until this first software is replaced by said second software.

8. The software execution control system according to claim 1, wherein said execution control program disables said second software by deleting all or part of said second

software when the execution of said second software is completed.

9. The software execution control system according to claim 1, wherein said second software includes a program and an accompanying data group, and said execution control program disables only said program of said decoded second software while the encoding data of said second software is saved when the execution of said second software is completed.

10. The software execution control system according to claim 1, wherein said execution control program is constructed as a program that cannot be forcibly ended separately from said second software.

11. The software execution control system according to claim 1, wherein said distribution part and said verification part are realized in respectively separate computers.

12. The software execution control system according to claim 1, wherein said execution control program performs periodic or non-periodic user verification with said verification part during the execution of said second software, and forcibly ends [the execution of] said second software in cases where this user verification fails.

13. The software execution control system according to claim 12, wherein the periodic or non-periodic user verification that is performed during the execution of said second software can be variably controlled with at least the

predicted future load conditions of the verification computer being taken into account.

14. The software execution control system according to claim 1, wherein said distribution part distributes a monitoring program to said user computer together with said second software and said execution control program, said monitoring program respectively monitors the operating conditions of said second software and said execution control program, and respectively shuts down said second software and said execution control program, and also shuts itself down, in cases where either said second software or said execution control program stops operating, and said execution control program respectively monitors the operating conditions of said second software and said monitoring program, and respectively shuts down said second software and said monitoring program, and also shuts itself down, in cases where either said second software or said monitoring program stops operating.

15. A software execution control program which updates first software installed in a user computer to second software, and which controls the execution of this second software, wherein said execution control program realizes, in said user computer, a first function which communicates with an external verification part via a communications network, and requests user verification, a second function which creates starting information for starting said second software on the basis of

specified information received from said verification part, a third function which decodes said second software on the basis of the specified information that is received from said verification part, a fourth function which replaces the software prior to updating that has already been installed in said user computer with said decoded second software, a fifth function which starts said second software by means of said created starting information, and a sixth function which monitors the conditions of execution of said second software, and which disables said second software when the execution of said second software is completed.

16. The software execution control program according to claim 15, wherein said second software includes a program and an accompanying data group, and said fourth function replaces either said program or said accompanying data group, or both.

17. The software execution control program according to claim 16, wherein the software prior to updating that has already been installed in said user computer can be executed without undergoing verification by means of said verification part before being replaced with said second software by said fourth function.

18. The software execution control program according to claim 17, wherein said sixth function disables said second software by deleting all or part of said second software when the execution of said second software is completed.

19. The software execution control program according to claim 17, wherein said second software includes a program and an accompanying data group, and said sixth function disables only said program of said decoded second software while saving the encoding data of said second software, when the execution of said second software is completed.

20. The software execution control program according to claim 15, wherein said execution control program is constructed as a program that cannot be forcibly ended separately from said second software.

21. A software execution control program which updates software that is installed in a user computer to second software, and controls the execution of this second software, wherein said software execution control program realizes, in said user computer, a function which acquires machine information that is specific to said user computer, a function which creates encrypting key information, a function which requests user verification from an external verification part, and which transmits at least said machine information and said encrypting key information to said verification part, a function which allows the user to select one set of second software from the list data of second software that can be started which is received from said verification part, and which notifies said verification part of the selected second software, a function which receives specified information that

is formed by encrypting storage destination address information, a starting argument and decoding key information of said selected second software in said user computer by means of said encrypting key information, a function which decrypts said encrypted specified information by means of at least said encrypting key information, a function which decodes the second software inside said user computer by means of said decrypted decoding key information, a function which creates said starting information on the basis of said decrypted starting argument and said storage destination address information, a function which starts said decoded second software by means of said created starting information, and a function which monitors the conditions of execution of said started second software, and which disables said second software when the execution of said second software is completed.

22. A software updating method comprising:

a step in which a user is notified that the freely usable first software installed in a user computer can be updated to second software;

a step in which said user computer is connected via a communications network to a distribution computer that distributes said second software, and updating to said second software is requested;

a step in which said second software that is encoded and an execution control program for controlling the execution of said second software are transmitted from said distribution computer to said user computer via [said] communications network;

a step in which said user computer and a verification computer are connected via said communications network, and user verification is requested from said verification computer, by said execution control program started in said user computer;

a step in which said second software is decoded on the basis of specified information that is transmitted from said verification computer to said user computer in cases where it is confirmed as a result of said user verification that said user is a valid user;

a step in which starting information for starting said second software is created on the basis of said specified information that is received from said verification computer;

a step in which said second software is started by means of said created starting information; and

a step in which the execution of said started second software is monitored, and said second software is disabled when the execution of said second software is completed.

23. A computer comprising:

a verification part which performs user verification in accordance with a request from an execution control program that is installed in a user computer together with second software that replaces first software; and

an information transmission part which transmits specified information that is required in order to decode and start said second software to said execution control program in cases where it is confirmed by said verification part that the user is a valid user;

wherein said second software is constructed so that this software can be started only by starting information that is transferred from said execution control program; and

said execution control program is constructed so that

(1) said encoded second software is decoded on the basis of said specified information that is received from said verification part, and is substituted for said first software;

(2) said second software is started by creating starting information on the basis of said specified information; and

(3) said second software is disabled when the execution of said second software is completed.

24. A management computer which controls the operation of an execution control program by performing communications with said execution control program, which is installed in a

user computer together with application software and a monitoring program, said management computer comprising:

    a verification part which performs user verification on the basis of a request from said execution control program;

    an information transmission part which transmits first information that is required for said execution control program to start said application software to said execution control program in cases where it is confirmed by said verification part that the user is a valid user; and

    a continued-execution management part which manages whether or not continuation of the execution of said application software is permitted on the basis of continuation confirmation communications performed with said execution control program at a specified time.

25. The management computer according to claim 24, wherein said continued-execution management part compares first identification information acquired from said execution control program and second identification information associated beforehand with said user verification by means of said continuation confirmation communications, allows said execution control program to continue the execution of said application software in cases where both sets of identification information correspond, and prohibits said execution control program from continuing the execution of

said application software in cases where said respective sets of identification information do not correspond.

26. The management computer according to claim 25, wherein said continued-execution management part sets said first identification information corresponding to said second identification information in said execution control program beforehand.

27. The management computer according to claim 24, wherein said continued-execution management part sets said specified time in said execution control program beforehand, and causes said continuation confirmation communications to be performed from said execution control program to said continued-execution management part when this preset specified time arrives.

28. The management computer according to claim 24, wherein said continued-execution management part can variably set said specified time.

29. The management computer according to claim 28, wherein said continued-execution management part can variably set said specified time while taking into account at least the predicted future load conditions.

30. The management computer according to claim 24, wherein said monitoring program respectively monitors the operating conditions of said application software and said execution control program, and respectively shuts down said

application software and said execution control program, and also shuts itself down, in cases where either said application software or said execution control program stops operating, and said execution control program respectively monitors the operation conditions of said application software and said monitoring program, and respectively shuts down said application software and said monitoring program, and also shuts itself down, in cases where either said application software or said monitoring program stops operating.

31. A software execution control system comprising a user computer in which application software is executed, and a management computer which manages the execution of said application software, wherein said user computer is provided with an execution control part for controlling the execution of said application software, and a monitoring part for monitoring the operation of said application software and said execution control part, and said management computer is provided with a verification part which performs user verification on the basis of requests from said execution control part, an information transmission part which transmits first information that is required for said execution control part to start said application software to said execution control part in cases where it is confirmed by said verification part that the user is a valid user, and a continued-execution management part which manages whether or

not continuation of the execution of said application software is permitted on the basis of continuation confirmation communications that are performed with said execution control part at a specified time.

32. A computer program for causing a computer to function as an execution control part that controls the execution of application software, and as a monitoring part that respectively monitors the operating conditions of said application software and said execution control part, wherein said execution control part comprises a function in which user verification is requested by communicating with a management computer, a function in which said application software is started on the basis of first information received from said management computer, a function in which continuation confirmation communications are performed with said management computer, and a function in which the operation of said application software is stopped in cases where continuation of the execution of said application software is prohibited as a result of said continuation confirmation communications, and said monitoring part comprises a function in which the operating conditions of said application software and said execution control part are respectively monitored, and a function in which said application software and said execution control part are respectively shut down, and the monitoring part itself is also shut down, in cases where either said

application software or said execution control part stops operating.

33. The computer program according to claim 32, wherein said execution control part further comprises a function in which the operating conditions of said application software and said monitoring part are respectively monitored, and a function in which said application software and said monitoring part are respectively shut down, and said execution control part itself is also shut down, in cases where either said application software or said monitoring part stops operating.

34. The computer program according to claim 32, wherein the function of said execution control part that performs continuation confirmation communications transmits first identification information that is preset by said management computer to said management computer at a specified time that is preset by said management computer.

35. The computer program according to claim 34, wherein said specified time is variably set by said management computer each time that said continuation confirmation communications are performed.

36. The computer program according to claim 32, wherein said application software, said execution control part and said monitoring part are recorded on the same recording medium and circulated [on the market].